Test Org.*	Device	Function	Technology	Mfr.	Effective SEU LET* Threshold	Device Xsection (cm^2)	Bits Tested	Bit Xsection (cm^2)	Test Date	LUth	LU Xsection (cm^2)	Fac.	Remarks 31-Aug-99
		SRAMs											
	Note: Entries in **RED** indicate data added since the 1997 Compendium.												
ROCK	2147	4K x 1	NMOS	INT	16	6.5E-02							
ROCK	4044	Quad NAND	NMOS	TIX	<18	5.5E-02							
ROCK	4104	Voltage translator	NMOS	MOS	0.5	4.0E-02							
JPL	8155	I/O timer	NMOS	AMD	<37	4.0E-02				no			
JPL	8155	I/O timer	NMOS	INT	<37	6.0E-02				>120			
ARSP	8414		CMOS	FUJ	12	1.7E-02							
ROCK	10432		PMOS	ROC	<37	1.0E-02							
ARSP	29705	16 x 4	Bipolar TTL	AMD	6	4.0E-03							
ROCK	30222		CMOS/SOS	ROC	>75					>100			
JH	71256	32K x 8		HTC	4	1.0E-01		4.0E-07	Aug-90			BNL	Compare IDT71256.
GSFC	71256	32K x 8	CMOS-crossed-R. Two versions	UTM	>80				Dec-92	>120		BNL	LaBel. 1.2 µm technology. Possible noise. No valid upsets
JPL	93419	64 x 8	Bipolar TTL	FAS	<5	7.0E-03		>7.0E-06	Dec-91			UCB	Goka, 91IEEE TNS, No. 6, pg 1693 for orbital comparisons
NASDA	**93419**	**64 x 8**	**Bipolar TTL**	**FAS**									**Shimano, et al, 91IEEE TNS, No. 6, pg 1693.**
JPL	93422	256 x 4	Bipolar TTL	AMD	<1	4.0E-02		4.0E-05	Jun-87			UCB	Campbell, 91IEEE TNS, No. 6, pg. 1647. Gives CRRES data. Similar results @ BNL.
ROCK	93471		Bipolar TTL	FAS	<14	2.7E-02		7.0E-06				UCB	110 MeV argon.
GSFC	**628128**	**128K x 8**	**CMOS (1 µm). NMOS Periph.**	**HTC**	**1.45**				**1995**	**>60**		**BNL**	**LaBel, et al, 96IEEE Wrkshp Rec. pg 19. Address errors.**
GSFC	**628128**	**128K x 8**	**CMOS (1 µm). NMOS Periph.**	**HTC**	**3.38**				**1995**	**>60**		**BNL**	**LaBel, et al, 96IEEE Wrkshp Rec. pg 19. Bit errors.**
GSFC	**628128**	**128K x 8**	**CMOS (1 µm). NMOS Periph.**	**HTC**					**1995**				**LaBel, et al, 96IEEE Wrkshp Rec. pg 19. Address errors.**
ARSP	µPB10474	SRAM	Bipolar-ECL	NEC	<<3	1.0E-01	2000			>40			
ARSP	µPD43256A	32K x 8	CMOS/NMOS	NEC	3	4.0E-01			Mar-90			UCB	No latchup
NTT	µPD446	2K x 8	CMOS	NEC	<<18	1.6E-02		1.0E-06				TU	Latchup. Tested at Tokyo Univ.
NASDA	**µPD4464D-20**	**2K x 8**	**CMOS**	**NEC**					**1997**	**4.56**	**2.4E-01**	**var.**	**Goka, et al, 98IEEE TNS, No. 6, pg. 2771.**
IBM	2568CRH	32K x 8	RHCMOS (Manassas)	IBM	>100				Mar-93	>100		BNL	From IBM Rept on Space Station (DMS) - 3/93
ARSP	27LS00	256 x 1	Bipola -LSTTL	AMD	4	1.0E-02		4.0E-05				UCB	
JPL/ARSP	31L01		Bipolar LTTL	AMD	6	1.0E-03		1.5E-05				UCB	

Heavy Ion SEE

Test Org.*	Device	Function	Technology	Mfr.	Effective SEU LET* Threshold	Device Xsection (cm^2)	Bits Tested	Bit Xsection (cm^2)	Test Date	LUth	LU Xsection (cm^2)	Fac.	Remarks 31-Aug-99
SEI	**32C408BRP**	**512K x 8**	**CMOS**	**SEI**	**3.3**	**3.5E-05**			**1997**	**>117**		**BNL**	**Layton, et al, 98IEEE Wrkshp Rec., pg 170.**
NASDA	**38510/91901XCR**	**64K**	**CMOS/epi**	**NEC**	**16.6**	**6.4E-02**		**1.0E-06**	**1997**	**>70**		**TIARA**	**Goka, et al, 98IEEE TNS, No. 6, pg. 2771.**
NASDA	**38510/92001XB**	**256K**	**CMOS**	**HTC**	**7.2**	**5.1E-02**		**2.0E-07**	**1997**	**>62**		**Var.**	**Goka, et al, 98IEEE TNS, No. 6, pg. 2771.**
JPL	4736B		LOC/MOS/epi	PHL	~100							UCB	
ARSP	51C67		CMOS/epi	INT	2	1.0E-02		6.0E-07				UCB	
JPL	51C98	64K x 8	CMOS/epi	INT	3	6.0E-02		1.0E-06	Oct-90	40		UCB	
ARSP	54F189	16 x 4	Bipolar TTL/F	NSC	3	2.0E-03			May-90			UCB	No LU
ARSP	54S189	16 x 4	Bipolar STTL	AMD	3	5.0E-05			Feb-90			UCB	No LU
ARSP	54S189	16 x 4	Bipolar STTL	SGN	5	1.5E-03		2.4E-05				UCB	
ARSP	54S201		Bipolar STTL	SGN	5	9.0E-03		3.5E-05				UCB	
GSFC	**5C1008FE-M**	**128K x 8**	**CMOS**	**AUS**	**<3.38**	**2.0E-01**			**1997**	**>50**		**BNL**	**O'Bryan, et al, 98IEEE Wrkshp Rec., pg 39. Multi-bit errors also seen.**
CNES	61CD16	2K x 8	CMOS/epi (EPIC)	TIX					1990	<13	6.0E-03	IPN	Chapuis
CNES	61CD16	2K x 8	CMOS/epi EPIC	TIX		4.0E-02		2.5E-06	Aug-90	<13	8.0E-03	IPN	Chapuis
CNES	61CD64S	8K x 8	CMOS/epi (EPIC)	TIX						>116		GANIL	
MHS	65162E	2K x 8	CMOS	MHS	3		120			>100			TEMIC/Matra MHS Radiation Evaluation Results Table, 7/1996.
MHS	65262E	16K x 1	CMOS	MHS	3		120			>100			TEMIC/Matra MHS Radiation Evaluation Results Table, 7/1996.
MHS	65656F	32K x 8	CMOS	MHS	4		30			>100			TEMIC/Matra MHS Radiation Evaluation Results Table, 7/1996.
MHS	65664E	8K x 8	CMOS	MHS	6		20			>100			TEMIC/Matra MHS Radiation Evaluation Results Table, 7/1996.
MHS	65687E	64K x 1	CMOS	MHS	6		20			>100			TEMIC/Matra MHS Radiation Evaluation Results Table, 7/1996.
MHS	65697F	256K x 1	CMOS	MHS	4		30			>100			TEMIC/Matra MHS Radiation Evaluation Results Table, 7/1996.
MHS	67005E	8K x 8 Dual Port	CMOS	MHS	4		100			>100			TEMIC/Matra MHS Radiation Evaluation Results Table, 7/1996.
MHS	67024E	4K x 16 Dual Port	CMOS	MHS	4		100			>100			TEMIC/Matra MHS Radiation Evaluation Results Table, 7/1996.
MHS	67025E	4K x 16 Dual Port	CMOS	MHS	7		150			>100			TEMIC/Matra MHS Radiation Evaluation Results Table, 7/1996.
MHS	67130E	1K x 8 Master Dual Port	CMOS	MHS	4		100			>100			TEMIC/Matra MHS Radiation Evaluation Results Table, 7/1996.
MHS	67132E	2K x 8 Master Dual Port	CMOS	MHS	4		100			>100			TEMIC/Matra MHS Radiation Evaluation Results Table, 7/1996.
MHS	67140E	1K x 8 Master Dual Port	CMOS	MHS	4		100			>100			TEMIC/Matra MHS Radiation Evaluation Results Table, 7/1996.
MHS	67142E	2K x 8 Slave Dual Port	CMOS	MHS	4		100			>100			TEMIC/Matra MHS Radiation Evaluation Results Table, 7/1996.

Heavy Ion SEE

Test Org.*	Device	Function	Technology	Mfr.	Effective SEU LET* Threshold	Device Xsection (cm^2)	Bits Tested	Bit Xsection (cm^2)	Test Date	LUth	LU Xsection (cm^2)	Fac.	Remarks 31-Aug-99
GSFC	70V25	8K x 16 Dual Port	CMOS	IDT	<3.46			5.0E-07	Jul-94	>80		BNL	LaBel, et al, 96IEEE Wrkshp Rec., pg 19. Some multiple-bit errors.
JPL	82S19	64 x 9	Bipolar-STTL	SGN	<5	>1.0E-02		>1.0E-05				CIT	29 MeV Oxygen
JPL	82S212	256 x 9	Bipolar-STTL	SGN	1	2.0E-02		1.0E-05	Jun-87			BNL	Campbell, 91IEEE TNS, No. 6, pg. 1647. Gives CRRES data.
ARSP	93L422	256 x 4	Bipolar-LTTL	AMD	<1	1.5E-02		1.5E-05	Dec-91			UCB	Campbell, 91IEEE TNS, No. 6, pg. 1647. Gives CRRES data.
JPL	93L422	256 x 4	Bipolar-LTTL	AMD	<1	4.0E-02		4.0E-05	Dec-91			UCB	Compare to previous entry. Remarks for TTL 93422 apply
JPL/ARSP	93L422	256 x 4	Bipolar-LTTL	FAS	1.8	2.0E-02		2.0E-05	Jul-86			UCB	See 89IEEE TNS, pg 2283 & 91IEEE TNS, No. 6, pg 1708.
JPL/ARSP	93L425	1K x 1	Bipolar-LTTL	FAS	<37	1.5E-02		1.5E-05				UCB	
ARSP	99C641	256 x 4	CMOS	AMD	~1	3.0E-01		5.0E-06	Mar-87			UCB	
JPL	AM21L47	4K x 1	NMOS	AMD	1.6	4.1E-01		1.0E-04	Aug-85			UCB	Campbell, 91IEEE TNS, No. 6, pg. 1647. Gives CRRES data.
ARSP	AM9122	256 x 4	Bipolar-LTTL	AMD	2	4.0E-02		4.0E-05				UCB	A variant of the 93L422.
JPL	AM92L44	4K x 1	NMOS	AMD	1.6	4.1E-01		1.0E-04	Aug-85			UCB	Campbell, 91IEEE TNS, No. 6, pg. 1647. Gives CRRES data.
MMS	**AS5C4008CW-35E**	**512K x 8**	**CMOS/epi, 0.5 µm feature**	**ASI**	**~1**			**8.0E+01**				**CYC**	**Poivey, et al, 98IEEE Wrkshp Rec., pg 68. D/C 9731. MOT chips packaged by Austin.**
GSFC	**AS5C512K8**	**512K x 8**	**CMOS**	**AUS**	**<3.38**	**1.0E-03**			**1997**			**BNL**	**O'Bryan, et al, 98IEEE Wrkshp Rec., pg 39. Multi-bit errors also seen.**
JPL/ARSP	CD4061		CMOS	RCA	~75							UCB	
JPL/ARSP/ ROCK	CDP1821	1K x 1	CMOS/SOS	RCA	145							UCB	
JPL/ROCK	CDP1822	256 x 4	CMOS/SOS	RCA	<216							UCB	
ROCK	CDP1825	64 x 8	CMOS/SOS	RCA	<37	4.0E-04		1.0E-07				UCB	
ARSP	CMM5104	4K x 1	CMOS/SOS	RCA	50							UCB	
ARSP/ROCK	CMM5114	1K x 4	CMOS/SOS	RCA	58				Dec-91			UCB	Wilkinson, et al, 91IEEE TNS, No. 6, pg 1708. TDRS data.
JPL/ARSP	CMM6167	16K x 1	CMOS/SOS	RCA	15	4.0E-04		3.0E-08 - 1.0E-07	Feb-89			UCB	Bit X-section = 10 @ LET = 120. Hi temp data available. 10/87, 6/88, & 2/89.
NRL	Comp. Heterostruct.	1K x 1	C-HIGFET (1 µm GaAS)	HON	~1			7.7E-07		>120		BNL	C-HIGFET SEU rates are 2 to 3 orders < than GaAs MESFETs. Proton data exists.
CNES	CXK581000	128K x 8	CMOS/NMOS	SNY	<1.7			7.0E-09 - 7.0E-08				IPN	Underwood, et al, 93IEEE Wrkshp Rec., pg 85. Bit X-section pattern depend. Proton data exists.
MMS	**CXK581000BP-10LL**	**128K x 8**	**CMOS**	**SNY**	**~2**			**1.0E-08**	**1997**	**>68**		**CYC**	**Poivey, et al, 98IEEE Wrkshp Rec., pg 68.**
ARSP	CXK581000P-10L	128K x 8	CMOS/NMOS	SNY	3	8.0E-02			Feb-90	55	2.0E-05	UCB	Includes multiple upsets.
JPL	CXK581000P-10LL	128K x 8	CMOS/NMOS	SNY	1.4	1.8E-01			Mar-93	15 to 38		BNL	Multiple errors suggested.
CNES	CXK581001	128K x 8	DC:9150/9151	SNY	<1.7			2.0E-09 - 4.0E-08				IPN	Underwood, et al, 93IEEE Wrkshp Rec., pg 85. Bit X-section pattern depend. Proton data exists.
ARSP	CXK581001	128K x 8	CMOS/NMOS	SNY	3	1.5E-01			Oct-92	30	5.0E-05	UCB	

Heavy Ion SEE

Test Org.*	Device	Function	Technology	Mfr.	Effective SEU LET* Threshold	Device Xsection (cm^2)	Bits Tested	Bit Xsection (cm^2)	Test Date	LUth	LU Xsection (cm^2)	Fac.	Remarks 31-Aug-99
ARSP	CXK58255	32K x 8	CMOS	SNY	6	1.0E-01			May-90	25	1.0E-03	UCB	Include multiple errors.
CNES	CXK58257	32K x 8	CMOS	SNY	<3							IPN	Duzellier, et al, 93IEEE Wrkshp Rec., pg. 36. Also has proton data.
JPL	CXK58258AP-1020	SRAM	CMOS	SNY	3	1.0E-03			Apr-96	40	2.0E-06	BNL	
ARSP	CY100E474	SRAM	Bipolar/ECL	CYP	~3	1.0E-02		3.7E-06		>60		UCB	Koga, et. al., 95IEEE TNS, No. 6, pg 1823
ARSP	CY7C150	1K x 8	CMOS	CYP					Jun-88	<30	1.0E-05	UCB	
GD	CY7C185	8K x 8	CMOS	CYP					Apr-90		8.0E-05	Cf-252	Cross section =- 2.0E-04 @ 85 °C.
ARSP	CY7C189	16 x 4	CMOS	CYP	1	2.0E-04			May-90	8	2.0E-04	UCB	
JPL	CY7C199	32K x 8	CMOS	CYP	1.5	3.0E-01			Mar-94	10	5.0E-04	BNL	Upset cross section @ LET = 15.
ARSP	CYPC128A	2K x 8	CMOS/NMOS	CYP	2	7.0E-03		4.0E-07	Dec-92	10	1.0E-04	UCB	
CNES	D431000	128K x 8	CMOS	NEC	<3				1993			IPN	Underwood, et al, 93IEEE Wrkshp Rec., pg 85. Double hits. Proton data exists. D/C 9137
CNES	D43256	32K x 8	CMOS	NEC	<3				1993			IPN	Underwood, et al, 93IEEE Wrkshp Rec., pg 85. Double hits. Proton data exists. D/C 9035
ESA	D4464	64K x 4	CMOS	NEC	11				Dec-91			HARW	LU See Goka, 91IEEE TNS, No. 6, pg 1693. Proton LU, McNulty, 93IEEE TNS, No. 6, pg. 1647.
ESA	D4464D	64K x4	CMOS	NEC					1992	2	1.5E-02	HARW	LU cross section @ saturation (LET = 12)
LIN	DPS92256	32K x 8	Densepac	HTC	<1.4				Aug-90	>54		BNL	
LIN	DPS92256	32K x 8	Densepac	SNY	~3				Aug-90	<26		BNL	
LIN	DPS92256G	32K x 8	CMOS	HTC					1991	<27		BNL	Sferrino
ARSP	EDH8832C	32K x 8	NMOS/CMOS	EDI	3	5.0E-01		2.0E-06	Dec-87	30	2.0E-03	UCB	
ESA	EDH8832C	32K x 8	NMOS/CMOS	EDI/MIT	~2			1.0E-06	Dec-91			IPN	Adams, 91IEEE TNS, No. 6, pg 1686.
Clem	HC5517A	2K x 8	CMOS	TIX	5	5.0E-06			Dec-91			BNL	McNulty, 91IEEE TNS, No. 6, pg. 1463. Cross section @ LET = 24.
HON	HC6116	2K x 8	CMOS with variable R.	HON	14			1.0E-06	Jun-92			BNL	Stassinopoulos, 91IEEE, No. 3, pg 450.
JPL	HC6116CHEC	2K x 8	CMOS (CMOS compat)	HON	28	6.0E-02		4.0E-06	Jun-88			UCB	Feb & June 1988. High temperature data exists.
JPL	HC6116CHET	2K x 8	CMOS (TTL compat)	HON	14	6.0E-02		4.0E-06	Jun-88			UCB	Same response as above.
ARSP	HC6116KSH-T	2K x 8	CMOS	HON	25	2.0E-02			Dec-89			UCB	No LU
JPL/ARSP	HC6167R	16K x 1	CMOS with R = 435 Kohms	HON	>120				Jul-88			BNL	No LU @ high temp. Similar results @ UCB.
HON	HC6216	2K x 8	CMOS with variable R.	HON	25 to 40			8.0E-07				BNL	Same as Hon test of HC6116. HC6216 is a variant of HC6116
HON	HC6364	8K x 8	CMOS/epi (4 µm); 500 kohm	HON	>90				Sep-89			BNL	Data at higher temps & with other resistors.
HON	HC6364	8K x 8	CMOS/epi	HON	<18				1993				McNulty, et al, 93IEEE TNS, No. 6, pg 1947.

Heavy Ion SEE

Test Org.*	Device	Function	Technology	Mfr.	Effective SEU LET* Threshold	Device Xsection (cm^2)	Bits Tested	Bit Xsection (cm^2)	Test Date	LUth	LU Xsection (cm^2)	Fac.	Remarks 31-Aug-99
JPL	HC6364	8K x 8	CMOS/epi	HON	36	2.0E-02			Mar-93	>84		BNL	SEU data at higher T. Comparable HON data is SEU LET_{th} = 56.
HON	HC6856	32K x 8	RICMOS IV [R = 108K]	HON	40			1.0E-07	Nov-91			BNL	Test for variations of Resistance and temperature @ 2.7 µm. epi. HON Rept. 11/91
HON	HC6856	32K x 8	RICMOS IV [R = 335K]	HON	>160				Nov-91				Test for variations of Resistance and temperature @ 2.7 µm. epi. HON Rept. 11/91
US	HM1-65162-2	2K x 8	CMOS/epi	HAR	<3.6	1.0E-01			1991			GSI	Dreute, RADECS 91, pg 505. X-section @ 62. Very high E. Multiple bit errors.
JPL	HM1-6562B	1K x 1	CMOS	HAR	~100							UCB	
ARSP	HM6116	2K x 8	NMOS	HTC	4	1.0E-02		6.3E-07	Jun-87	>10	4.0E-03	UCB	
ESA	HM6116	2K x 8	CMOS	HTC	5			3.0E-06	Dec-90	<13	3.0E-04	IPN	D/C 88. Proton data exists.
ESA	HM62256	32K x 8	CMOS	HTC	3			2.0E-06	1993			IPN	Harboe-Sorensen, et al, 93IEEE TNS. No. 6, pg 1498. D/C 8641 & 8845. Proton data exists
CNES	HM62256R	32K x 8	CMOS	HTC	<1.7	3.0E-06		3.0E-06	1993			IPN	Ecoffet, et al, 93IEEE Wrkshp Rec., pg. 36. D/C 9303. No LU. Also has proton data.
CNES	HM62382H	32K x 8	CMOS	HTC	<1.7	4.0E-07		4.0E-07	1993			IPN	Ecoffet, et al, 93IEEE Wrkshp Rec., pg. 36. D/C 9249. No LU. Also has proton data.
ESA	HM6264	8K x 8	CMOS	HTC	~5			1.5E-06	Dec-93	<13	1.0E-03	BNL	Harboe-Sorensen, et al, 93IEEE TNS, No. 6, pg 1498. D/C 8431. Proton data exists
ESA	HM6264A	8K x 8	CMOS	HTC	~5			1.5E-06	Dec-93		1.0E-03	IPN	Harboe-Sorensen, et al, 93IEEE TNS, No. 6, pg 1498. D/C 8901. Proton data exists
MMS	HM628128	128K x 8	CMOS/epi	HTC					1993	>110		GANIL	Beaucour, et al, 93IEEE Wrkshp Rec., pg 20. Hard Errors.
GSFC	HM628128	128K x 8	CMOS/epi	HTC	<1.4	3.3E+00			May-93	>110		BNL	LaBel, et al, 94IEEE Wrkshp Rec., pg 64. Dynamic test. Multiple bit hits.
GSFC	HM628128	128K x 8	CMOS/epi	HTC	<1.4	2.0E-01			May-93	>110		BNL	LaBel, et al, 94IEEE Wrkshp Rec., pg 64. Static test. Multiple bit hits.
ESA	HM628128	128K x 8	CMOS	HTC	~3			4.0E-07	1993			IPN	Harboe-Sorensen, et al, 93IEEE TNS, No. 6, pg 1498. D/C 9009. Proton data exists.
JPL	HM628128	128K x 8	NMOS/CMOS	HTC	4	6.0E-01		6.0E-07	Mar-90	80		UCB	
ARSP	HM628128	128K x 8	NMOS/CMOS	HTC	4	6.0E-01		6.0E-07	Jun-05	>127		UCB	Koga, et al, 93IEEE Wrkshp Rec., pg 1941.
GSFC	HM628128	128K x 8	CMOS & NMOS periph. (1 µmm)	HTC	~1.4							BNL	
MMS	**HM628128BLP-7**	**128K x 8**	**Hi CMOS 0.8 µm feaures. Rev B**	**HTC**	**~2**			**3.0E-07**	**1997**			**CYC**	**Poivey, et al, 98IEEE Wrkshp Rec., pg 68. D/C 9713**
ESA	HM628512	512K x 8	CMOS	HTC	~2			6.0E-07				BNL	Harboe-Sorensen, et al, 93IEEE TNS, No. 6, pg 1498. D/C 9235. A few stuck bits that anneal. Proton data exists.
GSFC	HM628512	512K x 8	Hi-CMOS/epi. 0.5 µm features.	HTC	~1.5	1.3E+00		3.0E-07	Sep-92	>90		BNL	LaBel, et al, 94IEEE Wrkshp Rec., pg 64. Proton data exists.
MMS	**HM628512ALP-7**	**512K x 8**	**Hi CMOS 0.5 µm feaures. Rev A**	**HTC**	**~2**			**2.0E-07**	**1997**			**CYC**	**Poivey, et al, 98IEEE Wrkshp Rec., pg 68. D/C 9705**
JPL/ARSP/ HAR/ESA	HM6504	4K x 1	CMOS	HAR	5	5.0E-03		1.3E-06	Oct-87	13	1.0E-04	UCB	Also tested at IPN 12/90.
JPL/ARSP	HM6508	1K x 1	CMOS	HAR	15	1.0E-02		1.0E-05				UCB	Latchup.
ROCK	HM6508	1K x 1	CMOS	HAR	38	2.0E-03		2.0E-06				UCB	Latchup.
JPL/ARSP	HM6508RH	1K x 1	CMOS/epi	HAR	>37	4.0E-03		4.0E-06				UCB	Cross section @ high LET.

Heavy Ion SEE

Test Org.*	Device	Function	Technology	Mfr.	Effective SEU LET* Threshold	Device Xsection (cm^2)	Bits Tested	Bit Xsection (cm^2)	Test Date	LUth	LU Xsection (cm^2)	Fac.	Remarks 31-Aug-99
ARSP	HM6508RH	1K x 1	CMOS/epi & R = 20Kohm	HAR	>120							UCB	
ARSP	HM6514	1K x 4	CMOS	HAR	10	2.0E-02		5.0E-06				UCB	Latchup
JPL/ARSP/ ESA	HM6516	2K x 8	CMOS	HAR	4	3.0E-02		2.0E-06	Mar-88	17	6.0E-04	UCB	Also tested @ IPN 12/90
JPL	HM6516	2K x 8	CMOS/epi (7 µmm)	HAR	10	5.0E-02		3.0E-06	Feb-87	>37		UCB	Nichols, et al, 87IEEE TNS, No. 6, pg 1800. Also tested at BNL
JPL/HAR	HM6516	2K x 8	CMOS/epi (12 µm)	HAR	<<6	2.0E-02		1.2E-06	Apr-87	~37		UCB	See IEEE ref. above. Also Hughes tested with Cf-252 - no LU.
SOR	HM65162	2K x 8	CMOS/no epi	HAR	3.5 to 4	5.0E-02			1995	4.5 to 8.5	2.0E-02	KA	Barak, et al, RADECS95, pg 321. Low energy ions. D/Cs 85, 86, 91.
JPL	HM65162	2K x 8	CMOS/epi	HAR					Apr-87	<<37	>>0.003	UCB	
CNES	HM65162	2K x 8	CMOS/epi	MHS					Feb-90	>37			Same tech. as HM65262.
CNES	HM65262	16K x 1	CMOS	MHS					Oct-89	<<37	4.0E-03	GANIL	
CNES	HM65262	16K x 1	CMOS/bulk	MHS					Feb-90	<16	6.0E-03	GANIL	
CNES	HM65262	16K x 1	CMOS/epi	MHS	3	9.0E-02			Feb-90			GANIL	Also tested at IPN.
JPL/ARSP	HM6551	256 x 4	CMOS	HAR	60					140			Kr at 75°C.
JPL	HM6551RH	256 x 4	CMOS/epi	HAR	~75								
CERT	HM65641	8K x 8	CMOS/epi	MHS	4	2.0E-01			1991	>72		IPN	Falguere, RADECS 91, p 479.
CNES	HM65641	8K x 8	CMOS/epi	MHS					Nov-90	<55		IPN	Chapuis, ESA Conf 11/90
CNES	HM65641	8K x 8	CMOS/epi (12 µm)	MHS	2.5	2.0E-01		3.0E-06	Dec-90	~50	4.0E-04	IPN	Chapuis, et al, 90IEEE TNS, No. 6, pg. 1839. D/Cs 8930 & 8933. Also tested @ GANIL.
MMS	HM65656	32K x 8	SCMOS/epi	MHS					1992	>140		GANIL	Dufour,et al, 92IEEE Wrkshp Rec., pg 21.
CNES	HM65656	32K x 8	SCMOS/epi	MHS	1.7	1.0E-01		3.0E-06	1993			IPN	Duzellier, et al, 95IEEE TNS, No. 6, pg 1797. High vs medium energy beam study. Comparison studies done at Saturne (France).
CERT/ CNES	HM65656	32K x 8	SCMOS/epi [high-performance]	MHS	5	1.0E-01	300						
SNL	**HM65656**	**32K x 8**	**CMOS, 0.8µm, rad-tolerant**	**MHS**	**~1**	**~1.5E-01**			**1997**			**BNL**	**Dodd, et al, 98IEEE TNS, No. 6, pg. 2483.**
MMS	HM65664	8K x 8	SCMOS/epi RT	MHS					1992	>140		GANIL	Dufour,et al, 92IEEE Wrkshp Rec., pg 21.
CNES	HM65664	8K x 8	SCMOS/epi [high-performance)	MHS	6	4.0E-01			Aug-91	>50		IPN	Final process. Aug. 91.
JSC	HM65664	8K x 8	SCMOS/epi [high-performance)	MHS	5			3.0E-07	Dec-90	>116		BNL	Also tested @ GANIL and IPN
CERT	HM65664	8K x 8	SCMOS/epi [high-performance)	MHS	5	4.0E-01			1991	>55		IPN	Falguere, RADECS 91, p 479.
JPL/ARSP	HS6504RH	4K x 1	CMOS/epi (rad hard)	HAR	36	1.2E-03		3.0E-07	Jun-88			UCB	Special JPL test of four epi thicknesses
ARSP	HS6504RH	4K x 1	CMOS/epi RH (R = 20 Kohm)	HAR	>80							UCB	
JPL	HS6504RRH	4K x 1	CMOS/epi RH (R = 200 kohm)	HAR	87				May-87			UCB	

Heavy Ion SEE

Test Org.*	Device	Function	Technology	Mfr.	Effective SEU LET* Threshold	Device Xsection (cm^2)	Bits Tested	Bit Xsection (cm^2)	Test Date	LUth	LU Xsection (cm^2)	Fac.	Remarks 31-Aug-99
ARSP	HS6504RRH	4K x 1	CMOS/epi RH (R = 200 kohm)	HAR	40	6.0E-08						UCB	Address latch only errors.
ARSP	HS6514RRH	1K x 4	CMOS & R = 200 Kohm	HAR	>80							UCB	
JPL/ARSP	HS65262RH	16K x1	CMOS/epi	HAR	20	1.0E-02		6.0E-07				UCB	
ARSP	HS65262RRH	16K x 1	CMOS/epi & R=?	HAR	>75							UCB	
ARSP	HS65C162	2K x 8	CMOS	HAR	10	4.0E-02				60		UCB	
JPL	HS65C262RRH	16K x1	CMOS/epi (CMOS compatable)	HAR	~40				Jul-88			UCB	Transients
JPL	HS65T262RRH	16K x1	CMOS/epi (TTL compatable)	HAR	20	4.0E-06			Dec-87			UCB	Transients
JPL	HX6364	8K x 8	CMOS/SOI	HON	>90				May-91	>90		BNL	Tested at 125 deg. C
JPL	IBM 6401	64K x 1	CMOS/epi	IBM	>115				Jun-92	>115		BNL	Development SRAM.
ARSP/IBM	IBM Development RH		RHCMOS-E (CMOS/epi)	IBM	>110				1992	>110		BNL	Brown,et al, 92IEEE Wrkshp Rec., pg 72. Up to 125 deg. C. Also tested at UCB.
IBM	IBM Development RH		RHCMOS-E (CMOS/epi)	IBM	12			1.0E-06		>120		BNL	WP-2 (Jim Pollock).
JPL/ARSP	IDT6116	2K x 8	NMOS/CMOS	IDT	6	6.0E-02		4.0E-06	Oct-87			BNL	Latchup.
JPL/ARSP	IDT6116RH	2K x 8	NMOS/CMOS with epi	IDT	3	6.0E-02		4.0E-06		100		UCB	Also tested at BNL
JPL/ARSP	IDT6116V	2K x 8	CMOS	IDT	6	2.5E-02		1.6E-06	Feb-87	>120		BNL	Series 2A development RH part. Also tested @ UCB 6/87
ARSP	IDT6167	16K x 1	NMOS/CMOS	IDT	3	4.0E-02		2.5E-06				UCB	Latchup
ARSP	IDT6167X	16K x 1	NMOS/CMOS	IDT	5	2.6E-02		1.7E-06	Jun-87	>120		UCB	Rad Hard Device.
GSFC	IDT70324L	2K x 8	CEMOS (low power)	IDT					Jun-94	>90		BNL	LaBel.
JPL/ARSP	IDT7052	2K x 8	NMOS/CMOSV	IDT	4	8.0E-02		5.0E-06	Oct-92	>100		UCB	
ARSP/JH	IDT71256	32K x 8	NMOS/CMOS	IDT	2.5	2.0E-01			Aug-90	15	7.0E-05	UCB	Also tested at Bevalac (1993) RADECS 93.
ARSP	IDT71256 (Rad Hard)	32K x 8	NMOS/CMOS	IDT	3	1.0E-01			Sep-88	>120		UCB	Up to 90 deg C.
CNES	IDT7134	4K x 8	CMOS	IDT	<1.7			3.0E-06	1993	12	7.0E-04	IPN	Duzellier, et al, 93IEEE Wrkshp Rec., pg 36. D/C ES. Proton data exists.
JH	IDT7134RT	4K x 8	CMOS	IDT					1991	<<37		BNL	Kinnison
ARSP	IDT7164	8K x 8	NMOS/CMOS	IDT	3	8.0E-02		1.3E-06	Jun-87	>120		UCB	Rad Hard Device.
ARSP	IDT7164	8K x 8	NMOS/CMOSV	IDT	3	1.0E-01		1.5E-06	Oct-92	8	8.0E-03	UCB	
ARSP	IDT71681	4K x 4	NMOS/CMOS	IDT	2	1.2E-01		7.5E-06		>11		UCB	
ARSP	IDT71681RH	4K x 4	NMOS/CMOS with epi	IDT	5	2.6E-02		2.0E-06				UCB	
BREL	IDT7187	64K x 1	NMOS/CMOS	IDT					Dec-90	6	5.0E-04	BNL	Johnston, et al, 90IEEE TNS No. 6, pg. 1886.

Heavy Ion SEE

Test Org.*	Device	Function	Technology	Mfr.	Effective SEU LET* Threshold	Device Xsection (cm^2)	Bits Tested	Bit Xsection (cm^2)	Test Date	LUth	LU Xsection (cm^2)	Fac.	Remarks 31-Aug-99
ARSP	IDT7187	64K x 1	NMOS/CMOS	IDT	5	4.0E-02		6.3E-07	Jun-87				Rad Hard Device. Compare above
JPL	IM6518	1K x 1	CMOS	INL	<37	3.0E-03		3.0E-06				UCB	
ARSP	IM65X08		CMOS	INL	<37	3.0E-03		3.0E-06				UCB	
ARSP	IM65X18		CMOS	INL	<37	3.0E-03		3.0E-06					
ARSP	IMS1600SL55	64K x 1	NMOS	ISM	<3	>2.0E-01			Mar-90	15	2.0E-03	UCB	
IBM	IMS1601EPI	64K x 1	CMOS non rad-hard	ISM	~2	4.0E-01			Oct-94	>60		UCB	Shinn, et al, 95IEEE TNS, pg 2017. Includes multibit errors using data of T. Scott (IBM)
IBM	IMS16-1EPI	64K x 1	CMOS/epi	SGS	3	3.0E-01			Jun-88	>60		UCB	T. Scott. Proton data exists.
ARSP	IN1600	64K x 1	NMOS/CMOS	ISM	~3	8.0E-01			Jun-87	<30	7.0E-03	UCB	Includes multibit errors. Also tested at ESTEC.
ARSP	IN1601	64K x 1	NMOS/CMOS	ISM	2	5.0E-01		8.0E-06	Mar-87	5	4.0E-04	UCB	Also tested at ESTEC.
CERT	IN1630SL	32K x 8	NMOS/CMOS	ISM	1	4.0E-01			1991	>72		IPN	Falguere, RADECS 91, p479. Double bit errors per data byte.
MMS	**IS61C1024-20M**	**128K x 8**	**CMOS (0.5 µm)**	**ISS**	**~2**			**1.5E-06**	**1997**	**>68**		**CYC**	**Poivey, et al, 98IEEE Wrkshp Rec., pg 68.**
JPL	KM684002	512K x 8	CMOS	SAM					Jan-97	>87		TAM	
MMS	**KM684002AJ-17**	**512K x 8**	**CMOS/epi, 0.5µm feature, Rev A**	**SAM**	**~1**			**1.0E-07**	**1997**			**CYC**	**Poivey, et al, 98IEEE Wrkshp Rec., pg 68.**
ARSP	L6116	2K x 8	CMOS/NMOS	LDI	5	8.0E-03		5.0E-07	Dec-92	15	1.0E-03	UCB	
JPL	L7C199DC-35	SRAM	CMOS	LDI					Apr-96				
SNL	**M65608**	**128K x 8**	**CMOS, 0.5µm, commercial**	**MHS**	**~1**	**1.0E-01**			**1997**			**BNL**	**Dodd, et al, 98IEEE TNS, No. 6, pg. 2483.**
SNL	**M65608E**	**128K x 8**	**CMOS, 0.5µm, rad-tolerant**	**MHS**	**~2**	**8.0E-02**			**1997**			**BNL**	**Dodd, et al, 98IEEE TNS, No. 6, pg. 2483.**
SNL	**M65964**	**64K test vehicle**	**CMOS, 1.0µm, rad-tolerant**	**MHS**	**~1**	**1.0E-01**			**1997**			**BNL**	**Dodd, et al, 98IEEE TNS, No. 6, pg. 2483.**
JPL	MA6116	2K x 8	CMOS/SOS	MED	>120				Apr-88			UCB	Hard technology.
ARSP	MA6116	2K x 8	CMOS/SOS	MED	43	1.0E-03			Apr-88	>90		UCB	
ESA	MA6116	2K x 8	CMOS/SOS	MED	32			8.0E-08				UCB	
ESA	MA6167	16K x 1	CMOS/SOS (3 µm)	MED	~40				1992			UCB	92IEEE TNS preprint.
CNES	MA9167	16K x 1	CMOS/SOS (1.5 µm)	MED	>72				Feb-90			IPN	
ESA	MA9187	64K x 1	CMOS/SOS	MED	60			>2.0E-08				UCB	
ESA	MARS94 Flight Part	32K x 8	CMOS Process SO6A	MCN	~1.5			5.0E-08	1993	>85		BNL	Harboe-Sorensen, RADECS 93 pg. 490.
CNES	MB81C81	256K x 1	CMOS tristate	FUJ					Feb-90	>114		IPN	
NTT	MB8401	1K x 1	CMOS	FUJ	18	2.0E-03		2.0E-06				TU	Tested at Toyko University.

Heavy Ion SEE

Test Org.*	Device	Function	Technology	Mfr.	Effective SEU LET* Threshold	Device Xsection (cm^2)	Bits Tested	Bit Xsection (cm^2)	Test Date	LUth	LU Xsection (cm^2)	Fac.	Remarks 31-Aug-99
JPL	MB8404	4K x 1	CMOS/epi (fast)	FUJ	~100							UCB	
NTT	MB8404	4K x 1	CMOS bulk	FUJ	<<18	8.0E-03		2.0E-06				TU	Tested at Toyko University.
ARSP	MB84256	32K x 8	CMOS	FUJ	<3	1.0E+00			Nov-89	25	6.0E-05	UCB	
ESA	MB84256	32K x 8	CMOS (1.8 µm)	FUJ	2			2.4E-07	Dec-91			IPN	Adams, et al, 91IEEE TNS, No. 6, pg 1686.
ARSP	MBM10474A	SRAM	Bipolar/ECL	FUJ	<<3	3.0E-02		7.3E-06		>40		UCB	Koga, et. al., 95IEEE TNS, No. 6, pg 1823. D/C 8802.
ARSP	MCM6226	128K x 8	CMOS/NMOS	MOT	<3	2.0E-01			Oct-92	45	2.0E-05	UCB	
MMS	**MCM6246WJ20**	**512K x 8**	**CMOS/epi, 0.5µm feat., Rev W51**	**MOT**	**~1**			**1.0E-07**	**1997**			**CYC**	**Poivey, et al, 98IEEE Wrkshp Rec., pg 68. D/C 9602**
ARSP	MDC5114	1K x 4	CMOS/epi	MED	50							UCB	
CNES	MHS65162	2K x 8	CMOS/epi	MHS					Feb-90	>72		IPN	Same technology as HM65252
ESA	MHS65162	2K x 8	CMOS/epi	MHS		1.2E-02		7.0E-07	1993	>20		GSI	Metzger et al, RADECS 93. Device and bit cross sections @ LET = 20.
ESA	MHS65162	2K x 8	CMOS/epi (10 µm)	MHS	4	3.0E-02			1993			GSI	Dreute, RADECS 91 & 93. X-section @ LET = 35. High vs low energy comp.
ESA	MHS65664	8K x 8	CMOS/epi (5 µm)	MHS	<10	1.2E-02			1993	>35		GSI	Dreute et al, RADECS 93
JPL/ARSP	MM54C200D	256 x 1	CMOS	NSC	>120							UCB	
JPL/ARSP	MM54C929	1K x 1	CMOS	NSC	15	1.0E-02		1.0E-06				UCB	Latchup
ARSP	MSC810	1K	CMOS	NSC	16	3.0E-03		3.0E-06				UCB	Latchup
NTT	MSM5164	64K	CMOS	MIT	3.5	1.0E-01		1.5E-06				TU	Latchup. Tested at Toyko University.
NTT	MSM5164	64K	CMOS/epi	MIT						<18	1.3E-03	TU	Note latchup of CMOS/epi technology
MMS	MSM8128	128K x 8	CMOS	HTC					1994			GANIL	Poivey, et al, 94IEEE TNS, No. 6, pg 2295. SHE (Single Hard Error), @ LET >50, 1.0E-3 cm2,
JPL	MSM8128K	128K x 8	CMOS	MOC	2.8	4.0E-03			Dec-93	26		BNL	Cross section at LET = 26.
JPL	MSM8128KL	128K x 8	CMOS	MOC	2.8	4.0E-03			Dec-93	26		BNL	No differences in -K and -KL devices. Cross section at LET = 26.
ARSP	MSM8128SLMB	128K x 8	CMOS	MIT	4	1.0E+00			May-90	85	4.0E-06	UCB	
ARSP	MSM8128SLMB-10	128K x 8	Hitachi dies	MOC	~4	1.0E+00			May-90	72	3.0E-06	UCB	Koga. Compare to Hitachi data. Proton data exists. Stuck bit Xsection <1E-7 cm^2.
CNES	MT5C1001	1M x 1	CMOS	MCN	<0.3	5.0E-01		4.0E-07 - 7.0E-07	1993			IPN	Duzellier, et al, 93IEEE Wrkshp Rec, pg 36. D/C 9133. Bit cross section is pattern dependent. Proton data exists.
MMS	MT5C1008	128K x 8	CMOS	MCN					1994			GANIL	Poivey, et al, 94IEEE TNS, No. 6, pg 2295. SHE (Single Hard Error), @ LET >50, 1.0E-3 cm2.
CERT	MT5C1008	128K x 8	CMOS	MCN	0.6	1.0E+00			1991			IPN	Duzellier, et al, 95IEEE TNS, No. 6, pg 1797. All "1s" worst case; includes multiple errors. High vs medium energy beam study. Comparison studies done at Saturne.
CNES	MT5C1008	128K x 8	CMOS/epi (7 µm)	MCN	~2	6.0E-01			May-91	>26		IPN	All "1s" is worst case; includes multiple errors. Tested before May 91.
CNES	MT5C1008	128K x 8	CMOS	MCN	<1.7	1.8E+00		2.5E-07 - 2.5E-06	1993			IPN	Ecoffet et al, 93IEEE & 92IEEE Wrkshp Rec.s. D/C 9125. Bit cross section is pattern dependent. Proton data exists.

Heavy Ion SEE

Test Org.*	Device	Function	Technology	Mfr.	Effective SEU LET* Threshold	Device Xsection (cm^2)	Bits Tested	Bit Xsection (cm^2)	Test Date	LUth	LU Xsection (cm^2)	Fac.	Remarks 31-Aug-99
CNES	MT5C1008	128K x 8	CMOS/epi	MCN	5	2.0E+00			Aug-91			IPN	D/C 9101. All '1s" is worst case.
CNES	MT5C1008	128K x 8	CMOS/epi LCRP	MCN	<1.7	2.0E-03		2.9E-09	1992			IPN	Duzellier, et al, 95IEEE TNS, No. 6, pg 1797. Bit X-section w/checkerboard. LCRP = Low current reistor process. Comparison tests at Saturne (France)
ARSP	MT5C1008	128K x 8	CMOS/epi	MCN	4	2.0E-02			Jul-91	>100		UCB	Koga, et al, 91IEEE-TNS, No. 6, pg 1529. Low current device cross section = 1.0E-02.
ARSP	MT5C1008	128K x 8	CMOS/epi LCRP?	MCN	4	2.0E-03			1993	>100		UCB	Koga, et al, 93IEEE TNS, No. 6, pg 1941. Single word multiple upsets (SMUs). Low cross section implies low current devices.
CERT/ CNES	MT5C1008	SRAM	CMOS	MCN	0.6	1.0E+00							
CERT/ CNES	MT5C1008	SRAM	CMOS/epi LCRP process	MCN	<1.7	2.0E-03		2.9E-09					
JPL	MT5C1008C	128K x 8	CMOS/epi LCRP?	MCN	<3	2.0E-02			Sep-91	>110		UCB	Hard errors annealed @ RT after test.
MMS	MT5C1008C	128K x 8	CMOS/bulk	MCN					1994	75	4.0E-04	GANIL	Dufour 92IEEE TNS; Poivey 94IEEE TNS; Beaucour 93IEEE Wrkshp Rec.. Hard errors.
MMS	MT5C1008CW	128K x 8	CMOS/bulk	MCN					1992	75	4.0E-04	GANIL	Dufour, et al, 92IEEE Wrkshp Rec., pg 21..
CNES	MT5C1009	128K x 8	Date Code "ES"	MCN	<1.7			1.0E-10 - 1.2E-08	1993			IPN	Duzellier, et al, 93IEEE Wrkshp Rec., pg 36. D/C ES. Bit X-section pattern dependent.
LIN	MT5C1608	2K x 8	CMOS	MCN					Apr-91	27		BNL	
LIN	MT5C1608	2K x 8		MCN	<1.4				Aug-90	<26		BNL	
ARSP	MT5C256	32K x 8	CMOS/NMOS	MCN	~3	1.0E+00			Jun-92	>100		UCB	Cross section is a factor of 100 smaller for high resistance
LIN	MT5C2568	32K x 8	CMOS/epi	MCN					1989	<40		UCB	Kinnison
LIN	MT5C2568	32K x 8	CMOS bulk	MCN					1991	>164		UCB	Sferrino '91.
ARSP/LIN	MT5C2568	32K x 8	CMOS/NMOS	MCN	<1.4	6.0E-01			Dec-88	15	1.0E-05	UCB	Includes multiple errors. Also tested at BNL (8/90) with same results.
ARSP	MT5C2568	32K x 8	CMOS/epi NMOS	MCN	3	9.0E-01			Jul-91	>100		UCB	Includes multiple errors.
JPL	MT5C2568	32K x 8	CMOS/epi (0.65 µm feature)	MCN	<1.4	6.0E-02			Dec-93	>72		BNL	
JPL	MT5C2568-35	32K x 8	CMOS/epi	MCN	<1.4	3.0E-02			Dec-93	>72		BNL	D/C 9333. Later S12 process. Same as following except no giant error clusters. All "1s" worst case.
JPL	MT5C2568-35	SRAM	CMOS/epi	MCN	<1.4	3.0E-02			Dec-93				
JPL	MT5C2568-70	32K x 8	CMOS/epi	MCN	<1.4	3.0E-02			Dec-93			BNL	D/C 9237. Earlier S06 process. Giant 32K error clusters at LET > 26. All "1s worst case.
JPL	MT5C2568-70	SRAM	CMOS/epi	MCN	<1.4	3.0E-02			Dec-96				
ESA	MT5C2568C	32K x 8	CMOS	MCN	<1.7			1.5E-06	1993	>40		IPN	Harboe-Sorensen, RADECS 93, pg 490. See later technology.
CERT	MT5C2568C	32K x 8		MCN	1	3.5E-01			1991	>72		IPN	Falguere, RADECS 91, pg 479.
MMS	MT5C2568C	32K x 8	CMOS 2M-2P	MCN	<1.0	6.0E-01			1992	23	1.0E-02		Dufour, et al, 92IEEE Wrkshp Rec., pg 21.. Includes multiple errors.
JPL	MT5C2568C-35	SRAM	S12 process (0.65 µm.)	MCN	<1.45	1.0E-02			Apr-96				
ARSP	MWS5501	1K	CMOS/SOS	RCA	>120							UCB	

Heavy Ion SEE

Test Org.*	Device	Function	Technology	Mfr.	Effective SEU LET* Threshold	Device Xsection (cm^2)	Bits Tested	Bit Xsection (cm^2)	Test Date	LUth	LU Xsection (cm^2)	Fac.	Remarks 31-Aug-99
JPL/ARSP	NBRC4042	16K	CMOS	HUG	20	2.0E-03		1.2E-07				UCB	
ARSP	OW5962	32K x 8	CMOS	OWI	8	5.0E-02			Jul-89	22	3.0E-03	UCB	Sony die
ARSP	OW62256	32K x 8	NMOS/CMOS	OWI	5	4.0E-01			Dec-87	>80		UCB	Includes multiple errors. HTC die
ARSP	OW62256CD	32K x 8 (die)	CMOS	HTC					May-90	>80		UCB	Koga
JH	P4C163	8K x 9	CMOS	PFS					Jan-91	30		BNL	
ARSP	P4C164L	8K x 8	CMOS	PFS					Sep-89	8	1.0E-02	UCB	
ARSP	P4C188L	16K x 4	CMOS	PFS	5	2.0E-02			Sep-89	11	8.0E-03	UCB	
ARSP	PACE422	256 x 4	Adv. CMOS	PFS	~1				Jun-87	10	2.0E-03	UCB	
JPL	PDM41256SA250	SRAM	NSC die	PDM	3.4				Apr-96	12	3.0E-06	BNL	LU masks SEU threshold.
JPL/ARSP	SA3001	2K x 8	CMOS	SNL	>75							UCB	
ARSP	SA3115	16K	CMOS	SNL	>70							UCB	
ARSP	SA3240	16K	CMOS	SNL	>250							ORNL	
MMS	SMJ44C251	256K x 4	CMOS (1 µm)	TIX	0.5			1.2E-06	Jul-93	>46		GANIL	Beaucour, et al, 93IEEE Wrkshp Rec., pg 20.
ARSP	SSM7188	16K x 4	BiCMOS	SRT					Jun-88	>60		UCB	
ARSP	TA11370	16K	CMOS/SOS	RCA	>50							UCB	For Vcc = 5.0 V. Note bias-dependent threshold.
ARSP	TA11370	16K	CMOS/SOS	RCA	>80							UCB	For Vcc = 10 V. Note bias-dependent threshold.
ARSP	TA12702	16K	CMOS/SOS	RCA	>70							UCB	
ARSP	TA13316	16K	CMOS/SOS	RCA	>80							UCB	
ARSP	TA597	1K	CMOS	SNL	>70							UCB	
SNL	**TA786**	**16K test vehicle**	**CMOS, 0.5µm, rad-tolerant.**	**SNL**	**~8**	**3.0E-03**			**1997**			**BNL**	**Dodd, et al, 98IEEE TNS, No. 6, pg. 2483.**
ESA	TC5516	2K x 8	CMOS	TOS	~6			3.0E-06	Dec-90	<27	1.0E-04	IPN	
JPL	TCC244 (Rad Hard)	256 x 4	CMOS	RCA	>100							UCB	
JPL/ROCK	TCC244 (SA3938)	256 x 4	CMOS CCL	SNL	>75							UCB	
JPL/ARSP	TCS130S	16K	CMOS/SOS	RCA	~48							UCB	Commercial part
ARSP	TCS146	4K	CMOS/SOS	RCA	>30	4.0E-04		1.0E-07				UCB	
ARSP	TCS205H	4K	CMOS/SOS	RCA	~120							UCB	
ARSP	TCS210S	4K	CMS/SOS	RCA	37	3.0E-04		8.0E-08				UCB	

Heavy Ion SEE

Test Org.*	Device	Function	Technology	Mfr.	Effective SEU LET* Threshold	Device Xsection (cm^2)	Bits Tested	Bit Xsection (cm^2)	Test Date	LUth	LU Xsection (cm^2)	Fac.	Remarks 31-Aug-99
CNES	TMS	16K	HCMOS3/epi	TMS	6	4.0E-02			Nov-90	>54		IPN	Chapuis. ESA Conference Nov 90.
CNES	TS4H6408	8K x 8	SOI	TMS	>114				1992			IPN	Ecoffet preprint. D/C 9151.
HAR	TSOS4	64K x 1	Std. Cell Lib. RH CMOS/SOS	HAR	>138				Oct-91			BNL	W. Newman, Harris memo
ROCK	UT67164	8K x 8	CMOS "prototype flow"	UTM	>37				Jul-93	>37		BNL	Ferdon. D/C 9320.
JPL	V1608	2K x 8	CMOS	VTC	15	2.0E-02		1.0E-06	Feb-87			BNL	
ARSP	XCDM62256	32K x 8	NMOS/CMOS	RCA	3	4.0E-01			Dec-87	30	1.0E-03	UCB	Includes multiple errors.
ARSP	XTA11246Z		CMOS/SOS	RCA	50							UCB	

Legend

Manufacturers: ADI - Analog Devices, Inc; AMD - Advanced Micro Devices; FAS - Fairchild Semiconductor Div; GEC - General Electric Corp; HAR - Harris Corp; IDT - Integrated Device Technology; Inc; ISM - Inmos, Corp;
ISS - ISS, Inc; LDI -Logic Devices; MHS - Matra-Harris Semiconductor; MOT - Motorola Semiconductors; NSC - National Semiconductor; PFS - Performance Semiconductor; RCA - Radio Corp of America;
SGN - Signetics Corp; SNL - Sandia National Labs; STM - STM (France); STX - Supertex; TIX - Texas Instruments; TRW - TRW Semiconductors; VTN - Vectron Laboratories; ZTX - Zytrex; ZYR - Zyrel

Test Organizations

ARSP - Aerospace Corp., El Segundo, CA
BREL - Boeing Radiation Effects Laboratory, Seattle, WA
CERT - CERT-ONERA, France
Clem - Clemson University, Clemson, SC
CNES - Centre National d'etudes Spatiales, Toulouse, France
ESA - European Space Agency, Noordwijk, Netherlands
GD - General Dynamics, Azuza, CA
GSFC - Goddard Space Flight Center, Greenbelt, MD
HAC - Hughes Aircraft Co, El Segundo, CA
HAR - Harris Corp, Melbourne, FL
HON - Honeywell Space Systems, Clearwater, FL
IBM - IBM Federal Systems Division, Manassas, VA
JH - Johns Hopkins Applied Physics Lab, Laurel, MD
JPL - Jet Propulsion Laboratory, Pasadena, CA
LIN - MIT Lincoln Labs, Lexington, MA
MHS - Matra Harris Semiconductor, France
MM - Martin Marietta Aerospace, Valley Forge, PA
MMS - Matra Marconi Space, France
NASDA - National Space Development Agency of Japan, Tokyo, Japan
ROCK - Rockwell Corp. (now Boeing), Anaheim, CA
SNL - Sandia National Laboratories, Albuquerque, NM

Radiation Test Facilities

BNL - Tandem Van de Graaff, Brookhaven National Laboratories, Long Island, NY
Cf-252 - Cf-252 Fission Source (various facilities)
GANIL - GANIL Accelerator, France
KA - Koffler Accelerator, Weizman Institute, Rehovot, Israel
UCB - 88-inch Cyclotron, University of California, Berkeley, CA